

Examiner Griffin:

This is in response to an outstanding Office Action in the above-identified application mailed September 30, 2002, with a shortened statutory period for response of three (3) months, set to
5 expire December 30, 2002.

Assistant Commissioner for Patents is authorized to withdraw any additional moneys required for this purpose from Deposit Account No. 01-0528.

IN THE CLAIMS

10 Please cancel, without prejudice, Claim 3.

Kindly amend Claims 1, 12 to 15, inclusive, and 20 to read as follows:

1. A process for the production of refinery transportation fuel or blending components for refinery transportation fuel, which process comprises:

15 providing organic feedstock comprising a mixture of organic compounds derived from natural petroleum, the mixture having a gravity ranging from about 10° API to about 100° API;

20 contacting a gaseous source of dioxygen with the organic feedstock in a liquid reaction medium containing a soluble catalyst system comprising at least one multi-valent and/or heavy metal while maintaining the liquid reaction medium substantially free of halogen and/or halogen-containing compounds, to form a mixture of immiscible phases comprising hydrocarbons, oxygenated organic compounds, water of reaction, and acidic co-products;

25 separating from the mixture of immiscible phases at least a first organic liquid of low density comprising hydrocarbons, oxygenated organic compounds and acidic co-products, and second liquid of high density which contains at least portions of the catalyst metal, water of reaction and acidic co-products;

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contacting at least a portion of the separated organic liquid with a neutralizing agent; and recovering a product having a low content of acidic co-products.

12. The process according to claim 21 wherein the
5 neutralizing agent is an aqueous solution of a chemical base in the form of carbonate or bicarbonate, and the recovered oxygenated product exhibits a total acid number of less than about 20 mg KOH/g.

13. The process according to claim 21 wherein the
10 neutralizing agent is an aqueous solution of a compound selected from the group consisting of sodium, potassium, barium, calcium and magnesium in the form of carbonate or bicarbonate, and the recovered oxygenated product exhibits a total acid number of less than about 20 mg KOH/g.

14. The process according to claim 21 wherein all or at least a
15 portion of the organic feedstock is a product of a process for hydrogenation of a petroleum distillate consisting essentially of material boiling between about 50° C. and about 425° C. which hydrogenation process includes reacting the petroleum distillate with a source of hydrogen at hydrogenation conditions in the presence of a
20 hydrogenation catalyst to assist by hydrogenation removal of sulfur and/or nitrogen from the hydrotreated petroleum distillate.

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15. A process for the production of refinery transportation fuel or blending components for refinery transportation fuel, which process comprises:

25 partitioning by distillation an organic feedstock comprising a mixture of organic compounds derived from natural petroleum, the mixture consisting essentially of material boiling between about 75° C. and about 425° C. to provide at least one low-boiling organic part consisting of a sulfur-lean, mono-aromatic-rich fraction, and a high-
30 boiling organic part consisting of a sulfur-rich, mono-aromatic-lean fraction;

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- contacting a gaseous source of dioxygen with at least a portion of the low-boiling organic part in a liquid reaction medium containing a soluble catalyst system comprising a source of at least one catalyst metal selected from the group consisting of manganese, cobalt, nickel, 5 chromium, vanadium, molybdenum, tungsten, tin, cerium, or mixture thereof, while maintaining the liquid reaction medium substantially free of halogen and/or halogen-containing compounds, to form a mixture of immiscible phases comprising hydrocarbons, oxygenated organic compounds, water of reaction, and acidic co-products;
- 10 separating from the mixture of immiscible phases at least a first organic liquid of low density comprising hydrocarbons, oxygenated organic compounds and acidic co-products and second liquid of high density which contains at least portions of the catalyst metal, water of reaction and acidic co-products; and
- 15 A3 15 contacting all or a portion of the separated organic liquid with a neutralizing agent and recovering a low-boiling oxygenated product having a low content of acidic co-products; and
- 20 contacting the high-boiling organic part with an immiscible phase comprising at least one organic peracid or precursors of organic peracid in a liquid reaction mixture maintained substantially free of catalytic active metals and/or active metal-containing compounds and under conditions suitable for oxidation of one or more of the sulfur-containing and/or nitrogen-containing organic compounds;
- 25 separating at least a portion of the immiscible peracid-containing phase from the oxidized phase of the reaction mixture; and
- 30 contacting the oxidized phase of the reaction mixture with a solid sorbent, an ion exchange resin, and/or a suitable immiscible liquid containing a solvent or a soluble basic chemical compound, to obtain a high-boiling product containing less sulfur and/or less nitrogen than the high-boiling part.

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20. The process according to claim 15 wherein the oxidation feedstock is a high-boiling distillate fraction consisting essentially of material boiling between about 200° C. and about 425° C derived from hydrotreating of a refinery stream.